User Guide

Linux Mint

Jan 18, 2022

Software

1 Snap Store 3

2 Chromium 5

3 Grub Boot Menu 7

4 Printers and Scanners 11

5 Edge ISO Images 15

6 Upgrades 17

7 How to upgrade to Linux Mint 20 19

This is the Linux Mint User Guide.

This Guide is not final. Content is being added slowly but surely :)

CHAPTER 1

Snap Store

The Snap Store, also known as the *Ubuntu Store*, is a commercial centralized software store operated by Canonical.

Similar to AppImage or Flatpak the Snap Store is able to provide up to date software no matter what version of Linux you are running and how old your libraries are.

1.1 Criticism

1.1.1 Centralized control

Anyone can create APT repositories and distribute software freely. Users can point to multiple repositories and define priorities. Thanks to the way APT works, if a bug isn't fixed upstream, Debian can fix it with a patch. If Debian doesn't, Ubuntu can. If Ubuntu doesn't Linux Mint can. If Linux Mint doesn't, anyone can, and not only can they fix it, they can distribute it with a PPA.

Flatpak isn't as flexible. Still, anyone can distribute their own Flatpaks. If Flathub decides they don't want to do this or that, anyone else can create another Flatpak repository. Flatpak itself can point to multiple sources and doesn't depend on Flathub.

Although it is open-source, Snap on the other hand, only works with the Ubuntu Store. Nobody knows how to make a Snap Store and nobody can. The Snap client is designed to work with only one source, following a protocol which isn't open, and using only one authentication system. Snapd is nothing on its own, it can only work with the Ubuntu Store.

This is a store we can't audit, which contains software nobody can patch. If we can't fix or modify software, open-source or not, it provides the same limitations as proprietary software.

1.1.2 Backdoor via APT

When Snap was introduced Canonical promised it would never replace APT. This promise was broken. Some APT packages in the Ubuntu repositories not only install snap as a dependency but also run snap commands as root without your knowledge or consent and connect your computer to the remote proprietary store operated by Canonical.

1.2 Disabled Snap Store in Linux Mint 20

Following the decision made by Canonical to replace parts of APT with Snap and have the Ubuntu Store install itself without users knowledge or consent, the Snap Store is forbidden to be installed by APT in Linux Mint 20.

Note: For more information read the announcements made in May 2020 and June 2019.

1.3 How to install the Snap Store in Linux Mint 20

Recommended or not, if you want to use the Snap Store, re-enabling and installing it is very easy.

```
sudo rm /etc/apt/preferences.d/nosnap.pref
apt update
apt install snapd
```

CHAPTER 2

Chromium

Chromium is an open-source web browser developed by Google.

Google also develops a proprietary browser based on Chromium called Chrome. This is the browser Google promotes and provides repositories for. There are no Google repositories for Chromium.

Chromium can be installed from the official repositories.

2.1 Linux Mint 18.x and 19.x

In Linux Mint 18.x and Linux Mint 19.x the packages is called *chromium-browser*:

```
apt install chromium-browser
```

2.2 Linux Mint 20.x and LMDE 4

In Linux Mint 20.x and LMDE 4, it is called *chromium*:

```
apt install chromium
```

CHAPTER 3

Grub Boot Menu

Grub is the boot menu.

If you have more than one operating system installed, it allows you to select which one to boot.

Grub is also useful for troubleshooting. You can use it to modify the boot arguments or to boot from an older kernel.

3.1 How to make the Grub menu always visible

If you only run Linux Mint and there are no other operating systems on the computer, the menu is hidden by default.

To make it visible, as root, add these lines to */etc/default/grub.d/90_custom.cfg*:

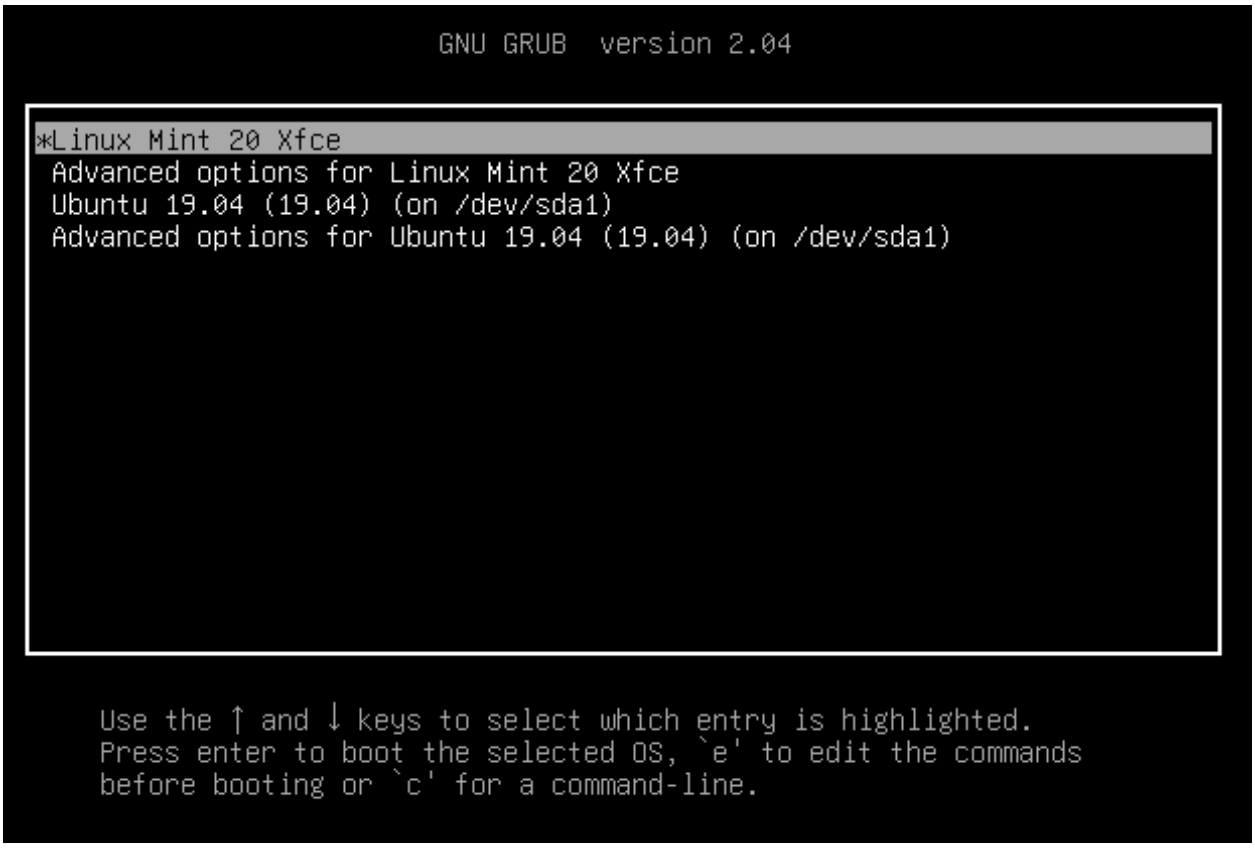
```
GRUB_TIMEOUT="5"
GRUB_TIMEOUT_STYLE="menu"
```

Then type the following commands in a terminal:

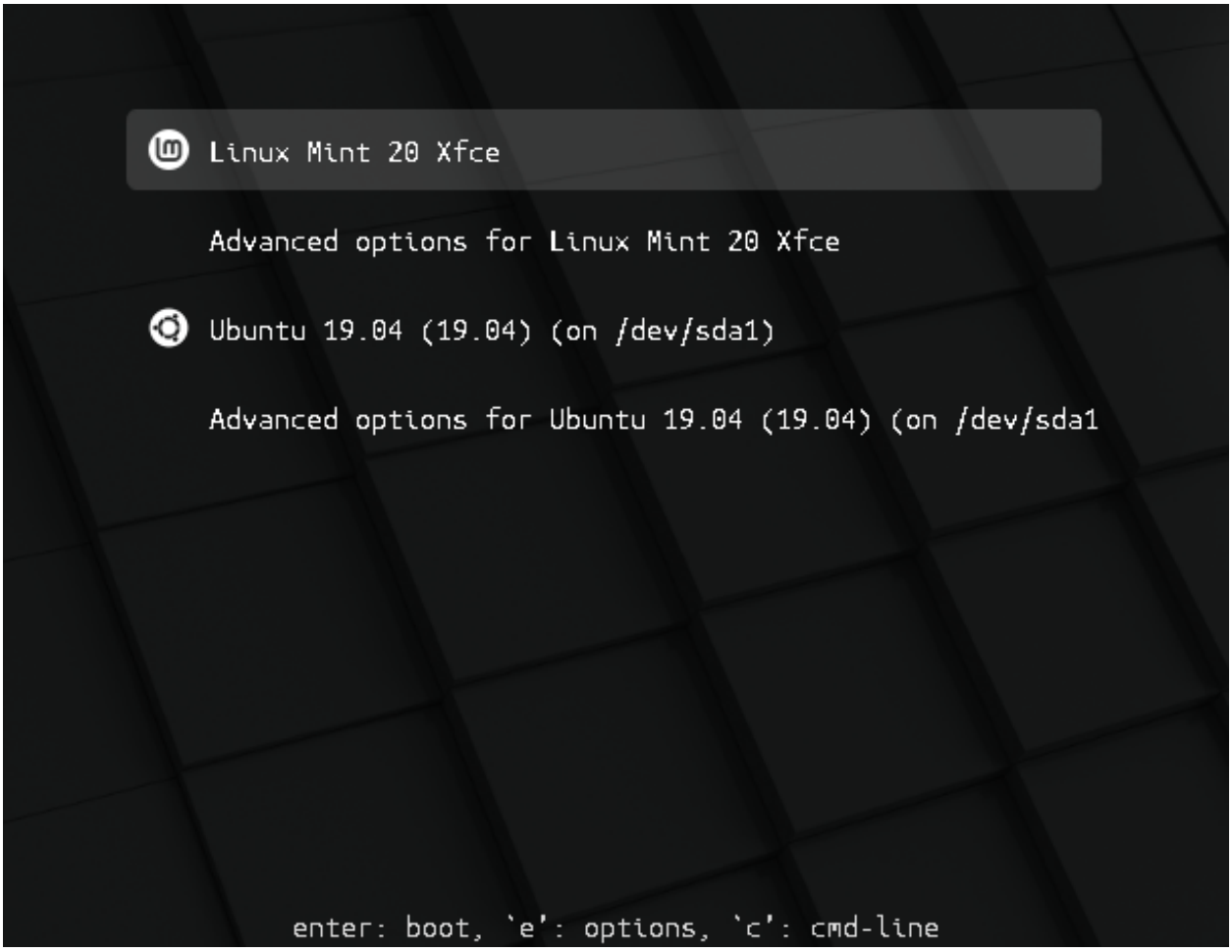
```
sudo update-grub
```

3.2 How to theme the Grub menu

For compatibility reasons, some releases sometimes ship without a Grub theme:


GNU GRUB version 2.04
*Linux Mint 20 Xfce
Advanced options for Linux Mint 20 Xfce
Ubuntu 19.04 (19.04) (on /dev/sda1)
Advanced options for Ubuntu 19.04 (19.04) (on /dev/sda1)
Use the ↑ and ↓ keys to select which entry is highlighted.
Press enter to boot the selected OS, `e' to edit the commands
before booting or `c' for a command-line.

You can make it look like this:


Linux Mint 20 Xfce
Advanced options for Linux Mint 20 Xfce
Ubuntu 19.04 (19.04) (on /dev/sda1)
Advanced options for Ubuntu 19.04 (19.04) (on /dev/sda1
enter: boot, `e': options, `c': cmd-line

To do so, open a terminal and type:

```
apt install --reinstall -o Dpkg::Options::="--force-confmiss" grub2-theme-mint
```

Or if you have a HiDPI screen, type this instead:

```
apt install --reinstall -o Dpkg::Options::="--force-confmiss" grub2-theme-mint-2k
```

CHAPTER 4

Printers and Scanners

To add a printer open *Printers* from the application menu and click on the *Add* button.

To scan a document open *Document Scanner* from the application menu.

Warning: Linux Mint 20 shipped with a package called *ippusbxd*. This package prevents many printers from working correctly. If this package is installed on your computer, remove it and reboot.

Note: Network printers can be automatically added and reappear even if you remove them. If you do not like this behaviour, remove the *cups-browsed* package.

4.1 Manufacturers

4.1.1 Hewlett-Packard (HP)

The HP drivers are called *HPLIP*. They are open-source and they are installed by default in Linux Mint. As a result, most HP printers and scanners work out of the box and don't require you to install any additional drivers.

Installing hplip-gui

In addition to the already installed *hplip* driver, there is a package available in the Linux Mint repositories called *hplip-gui*.

This package provides the following utilities:

- An HP status tray icon
- HP Device Manager
- HPLIP Toolbox

- HPLIP Fax Utility
- Fax Address book

Although you do not need *hplip-gui* to use your HP device, it can provide extra information (such as ink levels) and help troubleshooting.

Installing the proprietary plug-in

Some HP printers require proprietary software technologies to allow full access to printer features and performance. Unfortunately, these technologies cannot be open sourced, but to resolve this HP uses a binary plug-in for these printers.

To see if your printer requires the HP plugin-in, check the list of devices at the HP Developer Website.

To install the plugin-in, open a terminal and type:

```
apt install python3-pyqt5
sudo hp-setup
```

Then follow the instructions written on that website.

4.1.2 Brands which provide .deb packages

The following brands provide Linux drivers for their printers and scanners in the form of *.deb* packages:

- Epson
- Lexmark
- Samsung
- Xerox

Look for Linux drivers on your manufacturer's website, download the packages and double-click them to install them with *Gdebi*.

Hint: When you have a choice between different package options, choose *.deb*. If you have a choice for the package architecture choose *amd64* (note that this is sometimes called *x86_64* or even just *64-bit*).

4.1.3 Canon

Canon provides Linux drivers for its printers and scanners. They have different websites for Europe, the USA and various countries.

When downloading drivers from Canon, choose the *debian Package archive* option.

If they come as *.tar.gz* archives, decompress them.

Canon driver archives usually contain an *install.sh* script which already has execution permissions. Run it and follow the instructions provided by Canon.

4.1.4 Brother

Brother provides a utility to download and install the right driver for you.

Download the utility, choose *deb* when asked.

Decompress it, give it permission to execute and run it in a terminal:

```
chmod a+rx ./linux-brprinter-installer*
sudo ./linux-brprinter-installer*
```

Then follow the instructions provided by Brother.

4.2 Driverless Printing and Scanning

A standard protocol called *IPP* was designed to communicate with printers and scanners over the network. Nowadays this protocol is supported by many devices.

Driverless printing and scanning consists in using *IPP* locally, i.e. to be able to print and scan without the need for any drivers at all.

4.2.1 ippusbxd

ippusbxd was an early implementation of *IPP* over USB. It didn't work well and caused many issues. It was installed by default in Linux Mint 20. If this package is installed on your computer, make sure to remove it.

```
apt remove ippusbxd
```

Then reboot your computer.

4.2.2 ipp-usb

ipp-usb is a new implementation of *IPP* over USB. It works much better and recognizes many printers and scanners. If you are unable to make your device work using printing/scanning drivers, give *ipp-usb* a try.

First, remove your printer using the *Printers* configuration tool.

Then install *ipp-usb* from the repositories:

```
apt install ipp-usb
```

Finally reboot the computer.

Note: When ipp-usb is installed local printers are automatically added. They will reappear if you remove them.

Warning: When ipp-usb is installed it takes over communication with all printing/scanning devices, i.e. printing/scanning drivers cannot work, they're inhibited.

4.2.3 sane-airscan

sane-airscan provides support for eSCL (Apple AirScan, AirPrint) and Microsoft WSD (WS-Scan, Web Services for Devices).

If you can't get your scanner to work give sane-airscan a try.

Install it from the repositories:

```
apt install sane-airscan
```

And reboot the computer.

CHAPTER 5

Edge ISO Images

If you cannot boot or install Linux Mint because your hardware is too recent and is not properly detected look for an "Edge" ISO image.

In addition to its regular ISO images, Linux Mint sometimes provides an "edge" ISO image for its latest release. This image ships with newer components to be able to support the most modern hardware chipsets and devices.

Warning: The Edge ISO image is not as stable as the other ISOs and may not support as many proprietary drivers. Only use it if you cannot boot or install with the other ISOs.

5.1 Latest Edge ISO image

The latest Edge ISO image is Linux Mint 20.3 Cinnamon Edge.

It features the following upgraded components:

	20.3	20.3 Edge
Linux kernel	5.4	5.13

CHAPTER 6

Upgrades

6.1 Your Version

To find your version of Linux Mint, open a terminal and type:

```
cat /etc/linuxmint/info
```

6.2 Long Term Support

Each major Linux Mint release is supported for 5 years.

Version	Supported until
17, 17.1, 17.2, 17.3	April 2019
18, 18.1, 18.2, 18.3	April 2021
19, 19.1, 19.2, 19.3	April 2023
20, 20.1, 20.2, 20.3	April 2025

6.3 Upgrade Paths

The table below shows the upgrade paths between the various Linux Mint releases.

From version	To version	Type of upgrade	Tutorial
17	17.3	Simple	https://blog.linuxmint.com/?p=2955
17.1			
17.2			
17.3	18	Complex	https://community.linuxmint.com/tutorial/view/2316
18	18.3	Simple	https://blog.linuxmint.com/?p=3462
18.1			
18.2			
18.3	19	Complex	https://community.linuxmint.com/tutorial/view/2416
19	19.3	Simple	https://blog.linuxmint.com/?p=3838
19.1			
19.2			
19.3	20	Complex	https://linuxmint-user-guide.readthedocs.io/en/latest/upgrade-to-mint-20.html
20	20.3	Simple	https://blog.linuxmint.com/?p=4216
20.1			
20.2			

Note: There are no other upgrade paths than the ones listed above. For instance, you cannot upgrade version 18 to version 19.3 directly, you first need to upgrade it to 18.3, then to 19, then to 19.3.

6.4 Types of upgrade

6.4.1 Simple

Upgrades from one point release to another point release within the same major version of Linux Mint are usually quite simple and easy to perform. They take just a few minutes and do not involve using the command line.

6.4.2 Complex

Upgrades from one major version to the next are usually more complex. They can take up to a few hours, they require a certain level of knowledge and experience from the user and they are performed using the command line.

6.4.3 Alternatives

If you cannot upgrade perform a fresh installation.

Generic instructions on fresh upgrades are also available.

CHAPTER 7

How to upgrade to Linux Mint 20

This page explains how to upgrade from Linux Mint 19.3 to Linux Mint 20.

7.1 Requirements

7.1.1 64-bit architecture

Although both 32-bit and 64-bit versions of Linux Mint 19.3 are supported until April 2023, new releases of Linux Mint, including 20, are only available in 64-bit.

To upgrade to Linux Mint 20 you need to be running the 64-bit version of Linux Mint 19.3.

To check which version you're running type:

```
dpkg --print-architecture
```

If it says **amd64** you can upgrade to Linux Mint 20.

If it says **i386**, it means you're using the 32-bit version. In this case you cannot upgrade and you need to stick with Linux Mint 19.3.

7.1.2 Experience with APT

To upgrade to Linux Mint 20 you need experience with APT and the command line.

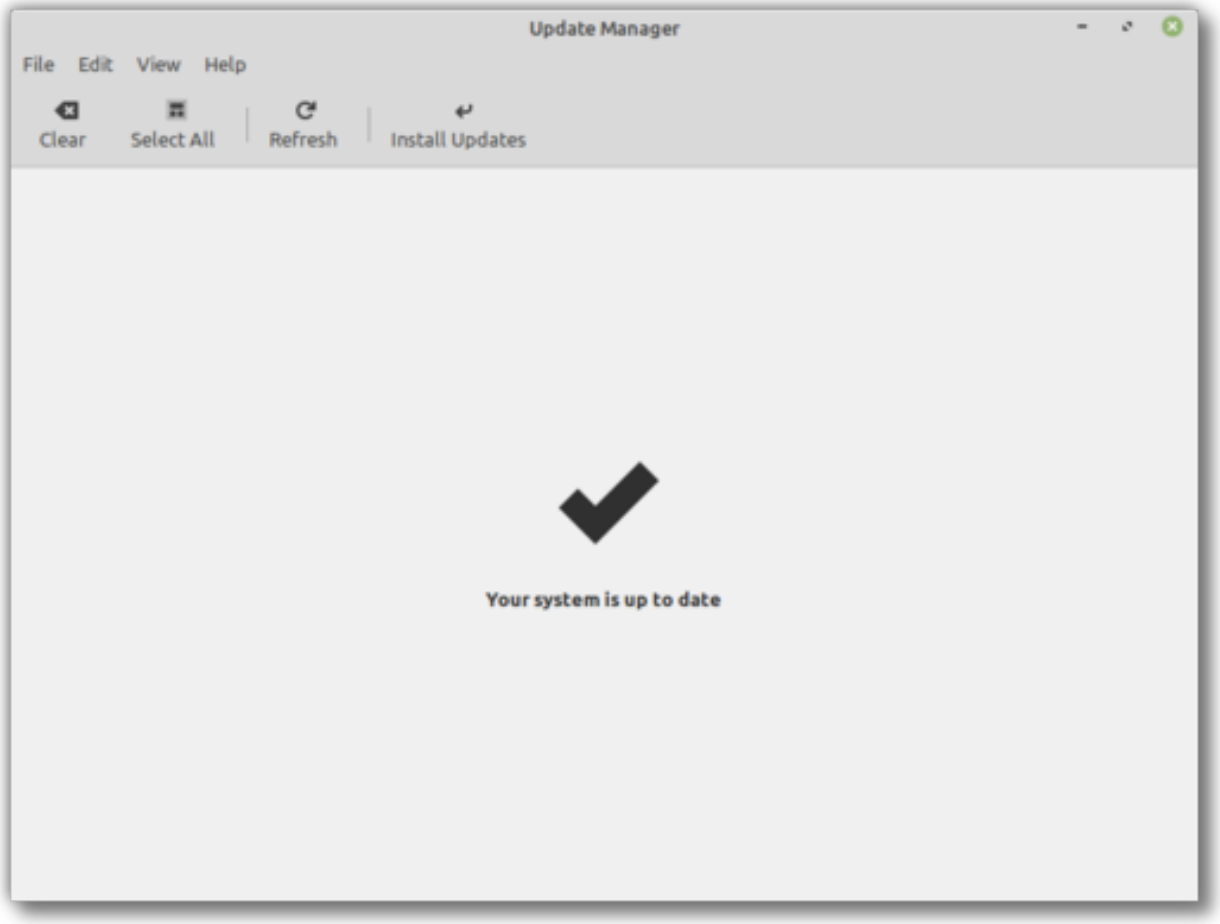
Upgrading to a newer package base is not trivial and it should not be performed by novice users.

You need to know how to type commands and read their output.

You also need to be experienced with APT. During the upgrade you'll need to understand the output of APT commands. You'll need to understand if a package needs to be removed, if it blocks the upgrade or if it conflicts with another package.

7.2 Preparation

7.2.1 Apply all package updates



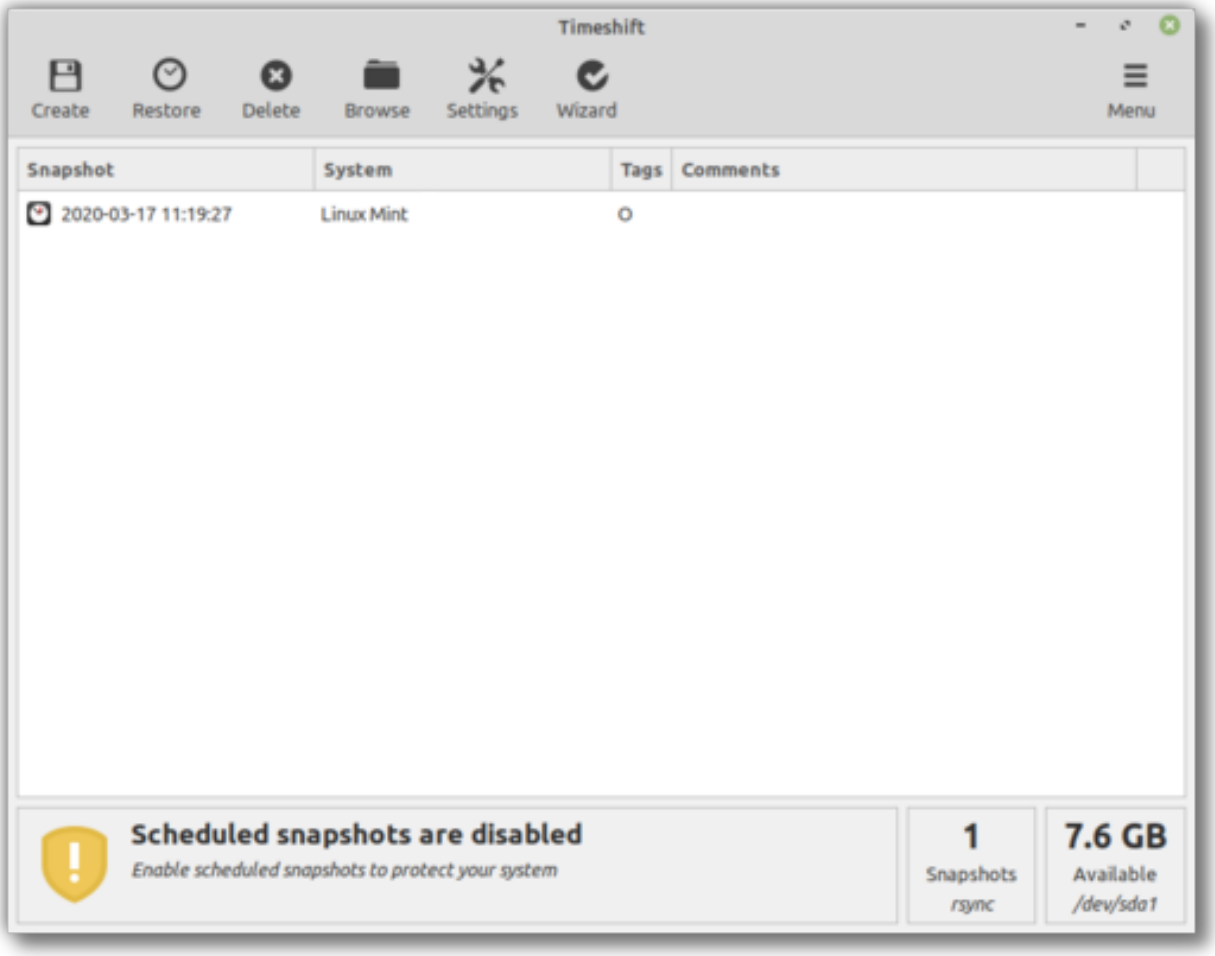
To apply all updates:

- Launch the Update Manager with *Menu* → *Administration* → *Update Manager*.
- Press the *Refresh* button to update the cache.
- Press the *Select All* button to select all updates.
- Press the *Install Updates* button.
- Follow the instructions from the Update Manager and install all updates until the manager tells you the system is up to date.
- Reboot the computer.

7.2.2 Create a system snapshot

If anything breaks or if anything goes wrong during the upgrade, you can go back in time and revert all changes by restoring your latest system snapshot. Whatever happens, you're covered. You'll be able to restore your operating

system to this current state, either from within Linux Mint, or by launching Timeshift from a live Mint session (live DVD or live USB).



To create a system snapshot:

- Launch Timeshift with *Menu* → *Administration* → *Timeshift*.
- Follow the wizard to select a destination for your snapshots.
- In the toolbar, click on the *Create* button to make a manual snapshot of your operating system.

7.2.3 Purge PPAs and 3rd party repositories

PPAs or 3rd party repositories can introduce issues during the upgrade if the versions of the packages they provide are higher than in Linux Mint 20. This can result in unmet dependencies, held packages or resolver issues.

To purge 3rd party packages follow these steps:

- Launch the Software Sources tool from *Menu* → *Administration* → *Software Sources*.
- Open the *Additional repositories* tab and disable all additional repositories.
- Open the *PPA* tab and disable all PPAs.
- Click on the button to refresh your APT cache.

- Open the *Maintenance* tab and click on *Downgrade Foreign Packages*.
- Select all foreign packages and click *Downgrade*.
- Click on *Remove Foreign Packages*.
- Select all foreign packages and click *Remove*.
- Reboot the computer.
- Create another Timeshift snapshot.

Note: This step is optional but it is strongly recommended. Some PPAs are perfectly fine, some aren't. Some only add packages and don't impact the upgrade process, others introduce dependencies which cannot be resolved.

You can leave some foreign packages installed or in their 3rd party version and try to upgrade if you want. If it works, then great. If it doesn't, you can always restore the previous snapshot and follow the steps above to purge them before trying again.

7.3 Upgrade

7.3.1 Install the upgrade tool

To install the upgrade tool, open a terminal and type:

```
apt install mintupgrade
```

7.3.2 Check the upgrade

To simulate an upgrade, open a terminal and type:

```
mintupgrade check
```

Then follow the instructions on the screen.

This command temporarily points your system to the Linux Mint 20 repositories and calculates the impact of an upgrade.

Note that this command doesn't affect your system. After the simulation is finished, your original repositories are restored.

The output shows you if the upgrade is possible, and if it is, which packages would be upgraded, installed, removed and kept back.

Note: It is extremely important that you pay close attention to the output of this command.

Keep using **`mintupgrade check`** and do not proceed to the next step, until you're happy with the output.

Hint: If this steps fails half-way through type **`mintupgrade restore-sources`** to go back to your original APT configuration.

7.3.3 Download the package updates

To download the packages necessary to upgrade, type the following command:

```
mintupgrade download
```

Note that this command doesn't actually perform the upgrade itself, but just downloads the packages.

7.3.4 Apply the upgrades

Warning: This step is non-reversible. Once you perform it, the only way to go back is by restoring a system snapshot.

To apply the upgrades, type the following command:

```
mintupgrade upgrade
```

7.3.5 Downgrade foreign packages

Some of your packages might have a lower version in Linux Mint 20 than in Linux Mint 19.3. To guarantee they function properly, they need to be downgraded.

- Launch the Software Sources tool from *Menu → Administration → Software Sources*.
- Open the *Maintenance* tab and click on *Downgrade Foreign Packages*.
- Select all foreign packages and click *Downgrade*.

7.3.6 Delete foreign packages

Some packages no longer exist in Linux Mint 20 and can safely be removed.

- Launch the Software Sources tool from *Menu → Administration → Software Sources*.
- Open the *Maintenance* tab and click on *Remove Foreign Packages*.
- With the exception of packages you want to keep, select all foreign packages and click *Remove*.

7.4 Troubleshooting

7.4.1 Installing mintupgrade

If you can't find *mintupgrade* in the repositories, switch to the default Linux Mint mirror and refresh the APT cache.

7.4.2 Restoring a snapshot

A known issue affects Timeshift. When restoring a snapshot, if the *Disclaimer* window is empty, wait for about 2 minutes for the text to appear. Once the disclaimer text is there you can press *Next* and restore your snapshot. Pressing *Next* before the text appears results in a failure to restore. If you did, reboot and try to restore again.

7.4.3 Skipping the timeshift requirement

If you're using another snapshot tool and would rather not use Timeshift, you can skip the Timeshift requirement with the following command:

```
echo "{}" | sudo tee /etc/timeshift.json
```

Don't forget to remove that file after the upgrade if you want Timeshift to work properly.

7.4.4 Computer freeze

On some computers the upgrade can be quite intensive and it can temporarily freeze the desktop. This can last for up to 10 minutes at times or even take hours on slow computers. This is OK, be patient and give it time.

If this becomes a problem, logout completely, drop to console with `CTRL+ALT+F2` and run **`mintupgrade upgrade`** from there instead.

7.4.5 Broken boot

If the computer no longer boots, boot from the live Linux Mint 19.3 ISO.

From the live session, launch *Boot Repair* and use it to fix the boot sequence.

If this doesn't work, boot from the live Linux Mint iso again, and launch *Timeshift*.

Timeshift is able to scan your drives from the live session and restore your snapshot from there.

7.4.6 Boot warnings

You can ignore boot warnings related to *ACPI* or *initramfs unpacking*. They're cosmetic and do not affect the boot sequence.

7.5 Notes

The upgrade overwrites files in */etc/* with default configuration files. You can restore files indivually by the Timeshift snapshot you made prior to upgrading.

To restore your lightDM settings, run the Login Window configuration tool (**`sudo lightdm-settings`**).

7.6 Alternatives

If you cannot upgrade perform a fresh installation.

Generic instructions on fresh upgrades are also available.